

This listing of claims will replace all prior versions and listings of claims in the application.

Claims 1-15. (Cancelled).

16. (Cancelled).

17. (Cancelled).

18. (Cancelled).

19. (Cancelled).

20. (Cancelled).

21. (Currently amended) A semiconductor device having a gate ~~oxide dielectric~~ of multiple thickness for multiple transistors, the semiconductor device comprising:

a first gate ~~oxide dielectric~~ region having a first thickness for a first transistor, and
a second gate ~~oxide dielectric~~ region having a second thickness for a second transistor,
the second gate ~~oxide dielectric~~ region including an oxygen-implanted oxide layer under a ~~non-implanted oxide~~ high dielectric constant layer under a polysilicon gate, the second thickness being greater than the first thickness.

22. (Previously presented) The semiconductor device of claim 21 wherein the first thickness is less than about 30 Å.

23. (Previously presented) The semiconductor device of claim 21 wherein the first thickness is less than the second thickness by less than about 20 Å.

24. (Cancelled).

25. (Cancelled).

26. (New) The semiconductor device as defined by claim 21 wherein the high dielectric constant layer is selected from the group consisting of silicon nitride, zirconium oxide, and hafnium silicate.

27. (New) The semiconductor device as defined by claim 26 wherein the oxygen implanted oxide layer is less than 2 nm in thickness.

28. (New) The semiconductor device as defined by claim 21 wherein the oxygen implanted oxide layer is less than 2 nm in thickness.

29. (New) A semiconductor device comprising:

- a) a silicon substrate,
- b) a gate dielectric comprising a high dielectric constant layer on the silicon substrate and a silicon oxide layer in the silicon substrate under the high dielectric constant layer, the silicon oxide layer including oxygen ions implanted through the high dielectric constant layer and into the silicon substrate, and
- c) a gate electrode over the gate dielectric.

30. (New) The semiconductor device as defined by claim 29 wherein the high dielectric constant layer is selected from the group consisting of silicon nitride, zirconium oxide, and hafnium silicate.

31. (New) The semiconductor device as defined by claim 30 wherein the oxygen implanted oxide layer is less than 2 nm in thickness.

32. (New) The semiconductor device as defined by claim 29 wherein the oxygen implanted oxide layer is less than 2 nm in thickness.